Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1–2 (canceled)

Claim 3 (new): In a method for determining the most efficient synthesis of a representative set of compounds from a large chemical library, which large chemical library has been partitioned into regions of similarity or clusters, each cluster being represented by a skeletal structure having a core, locations for substitutions on the core (specific substituent group location) and a set of substituents for each specific substituent group location, the improvement which comprises;

(a)   determining the most frequent substituent within a specific substituent group location across the clusters;

(b)   eliminating all the clusters and their contents for that substituent determined in step a);

(c)   repeating steps a) and b) for all substituents to produce a first ordered list;

(d)   repeating steps a), b) and c) for each specific substituent group location to generate second, third, and the other ordered lists;

(e)   determining the cross-products of each of the lists;

(f)   eliminating all the clusters covered by such cross-products;

(g)   repeating steps a) through f) until all clusters have been eliminated; and

(h)   reviewing the results obtained from step (g) to generate a ranking or order for synthesis.